

## **FREQUENTLY ASKED QUESTIONS ABOUT NEW FATTY ACID RESEARCH\* ON METABOLISM AND MILK PRODUCTION IN DAIRY COWS**

### 1. Why did Milk Specialties invest time and money into this research?

Consultants and dairymen saw increases in milk fat % just weeks after feeding a high palmitic acid fat supplement. However, after 4-6 months, they noticed that cows had lost body condition and in some cases, milk yield as well. They asked us to review the science and find the answer.

### 2. Why did I notice that my cows lost body weight and body condition after feeding a high palmitic acid supplement?

Published research trials that fed high-palm (>80%) dry fat supplements used experimental periods of only 14-35 days. These trials were too short term to reveal problems that may arise during continued feeding of an unbalanced supplement. Three of the published trials showed significant reductions in DMI. This eventually led to reductions in body weight and condition on commercial dairies. It also helps to explain the drop in milk yield experienced on some dairies. This could not be observed in short term studies.

### 3. Why does a specific balance of fatty acids in a fat supplement matter for increased milk fat?

Palmitic and stearic acids are fatty acids critical to milk production. Research shows that when palmitic acid levels in milk increase, stearic acid is reduced to compensate, and vice versa. Loading the cannon with either all palmitic acid or all stearic acid interrupts the cow's natural synthesis of milk fat. Recent research trials show she prefers a balanced approach of feeding a fat supplement that mimics her own milk fat make up.

### 4. Is there a difference in the digestibility of palmitic or stearic acid?

No. Review papers from 1993, 1997, 2006 and 2008 all have concluded that the palmitic and stearic acid digestibilities are the same. The variation in digestibility is between different individual trials and the different diets used during the trials. They both have a digestibility of 76%.

5. Are there any downsides to feeding a dry fat supplement that's high in palmitic acid?

Yes, the recent research has shown that feeding high levels of palmitic acid significantly reduced DMI in half of those trials. Feeding high palmitic acid interrupts normal milk fat production that requires the byproducts of normal fiber digestion to make milk fat. Feeding high palmitic acid supplements reduce other long chain fatty acids such as oleic acid which maintains the fluidity of milk.

6. How does the right fatty acid blend make it easier for cows to produce milk fat and milk?

A dairy cow's natural metabolism is constantly adjusting to create a "sweet spot" balance of fatty acids in its body and milk. Previous studies of fatty acid supplements have missed this tendency to rebalance, as well as the complexity of bioconversion and synthesis that happens within the rumen, small intestine and mammary tissue. New research now reveals these theory-changing facts, and proves that Energy Booster has always contained the fatty acid blend that cows naturally utilize best for optimum condition and production. Energy Booster is tallow based and the fatty acid levels in tallow are similar to those in milk fat.

7. How can I determine which dry rumen inert fat is the best one to buy?

Milk Specialties is the only dry fat manufacturer that has long-term research, proving specific proportions of palmitic and stearic fatty acids are needed to achieve maximum benefits and maintain them long-term. Developed from intense and now extended research, Energy Booster has always contained this precisely balanced blend of fatty acids. Published research from longer term studies is still the "gold standard".

\* Loften et al. "Palmitic and stearic acid metabolism in lactating dairy cows." *Journal of Dairy Science* Vol. 97 No. 8 (2014): 1-14.